Remarks

The various parts of the Office Action (and other matters, if any) are discussed below under appropriate headings.

Claim Rejections - 35 USC § 102 and § 103

Claim 1 recites a device for non-invasively stimulating specific areas of a brain within a head, the device including a non-invasive induction device, and at least one marker connected to the non-invasive induction device, the at least one marker being detectable by a tracking system. Claim 3 recites a system for stimulating specific areas of the brain using an induction device having at least one tracking system detectable marker attached to the induction device.

As disclosed in the present application, the use of a marker is advantageous in that the person being examined need not be securely positioned. Examination can take place even if the patient is moving about the examination area. (See, e.g., page 5, lns. 15-17).

The Examiner admits that *Fox* does not disclose the use of markers. However, the Examiner, citing to paragraph 0027 of *Fox*, contends that such markers are inherent in the system of *Fox*. Applicants respectfully disagree with the Examiner for at least the following reasons.

Fox discloses in paragraph 0027 that a three-dimensional model of the TMS coil's surface and of the three-dimensional E-field generated by the coil are created. Further, the three dimensional coil surface model and E-field model are positioned and oriented with respect to a patient anatomical model. Each of these *models* are computer models stored in computer memory. (See paragraphs 0025-0027).

It is respectfully submitted that the models themselves do not require nor have a marker attached thereto, as they only exist in computer memory (i.e., they are not real). Accordingly, it is reasonable to conclude that paragraph 0027 does not inherently teach or require a marker connected to the TMS coil and the marker to be detectable by a tracking system.

Moreover, *Fox* discloses that the models and the data obtained therefrom (e.g., optimal position of the TMS coil with respect to the target site) can be used to treat the

patient. Prior to treating the patient, *both the patient's head and the TMS coil surface are registered to the computer models*. More specifically, the patient's head is rigidly fixed using a thermoplastic mask or metal ring, and a three-dimensional digitizer is used to collect a series of points on the scalp surface. These points then are used to create a model of the patient's scalp surface, which then is registered to the anatomical model in computer memory. Similarly, the three-dimensional digitizer is used to collect a series of reference points on the surface of the actual TMS coil, which then are used to register the surface of the TMS coil to the TMS surface coil model in computer memory. (Paragraph 0028).

By using the three-dimensional digitizer to identify points on the TMS coil surface and on the patient's scalp, the robotic control system that positions the TMS coil is taught the location of the TMS coil surface and the patient's scalp surface in three-dimensional space. As a result, the robotic control system can orient the TMS coil surface with respect to the patient's scalp so as to position the coil as dictated by the models in computer memory.

In the system of *Fox*, the patient must be rigidly held in place (e.g., via the thermoplastic mask), as would be the case if neither the patient nor the TMS coil has attached thereto a marker that is detectable by a tracking system. Movement of the patient after registration would result in a registration error and, thus, the system would not operate properly.

Accordingly, *Fox* teaches that the TMS coil surface is correlated or registered to the model of TMS coil surface *by collecting a series of points on the actual coil surface via a three-dimensional digitizer*. Once registered, the system, via the robotic arm, can orient or position the actual coil surface based on the computer models (e.g., the desired orientations of the coil surface with respect to the patient's scalp). In other words, and contrary to the Examiner's contention, the system can and does identify the position of the device in three dimensional space without a marker connected to the device.

Fox has not been found to teach explicitly or inherently a non-invasive induction device, and at least one trackable marker connected to the non-invasive induction device, as recited in claim 1, or a system for stimulating specific areas of the brain using an induction device having at least one tracking system detectable marker attached to the induction device, as recited in claim 3. The other reference applied by the Examiner, *He*, has not been found to make up for the deficiencies of *Fox*.

Accordingly, withdrawal of the rejection of claims 1 and 3 is respectfully requested.

Claims 2 and 4-13 depend from claim 1 or 3 and, therefore, can be distinguished from the cited art for at least the same reasons.

Accordingly, withdrawal of the rejection of claims 2 and 4-13 is respectfully requested.

Conclusion

In view of the foregoing, request is made for timely issuance of a notice of allowance.

Respectfully submitted,

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